

ABSTRACT OF THE DISCLOSURE

[00507] Transgenic silencing is a little understood process by which genes introduced into plants are turned off or silenced. Genetic screens were designed to identify corn mutants with reduced gene silencing activity. Such mutant corn lines include *Mop1-1*; *Mop1-2EMS*; *Mop2-1*, *mop3-1*; CC2343, *rmr1-1*; *rmr1-2*; *rmr2-1*; *rmr6-1*; *rmr7-1*; *rmr7-2*; *rmr8-1*; *rmr9-1*; *Mop1-4*; *Mop1-5*; and *rmr11-1* and seeds derived therefrom, the plants are useful for corn breeding programs to produce inbred and hybrid seed with reduced gene silencing activity.

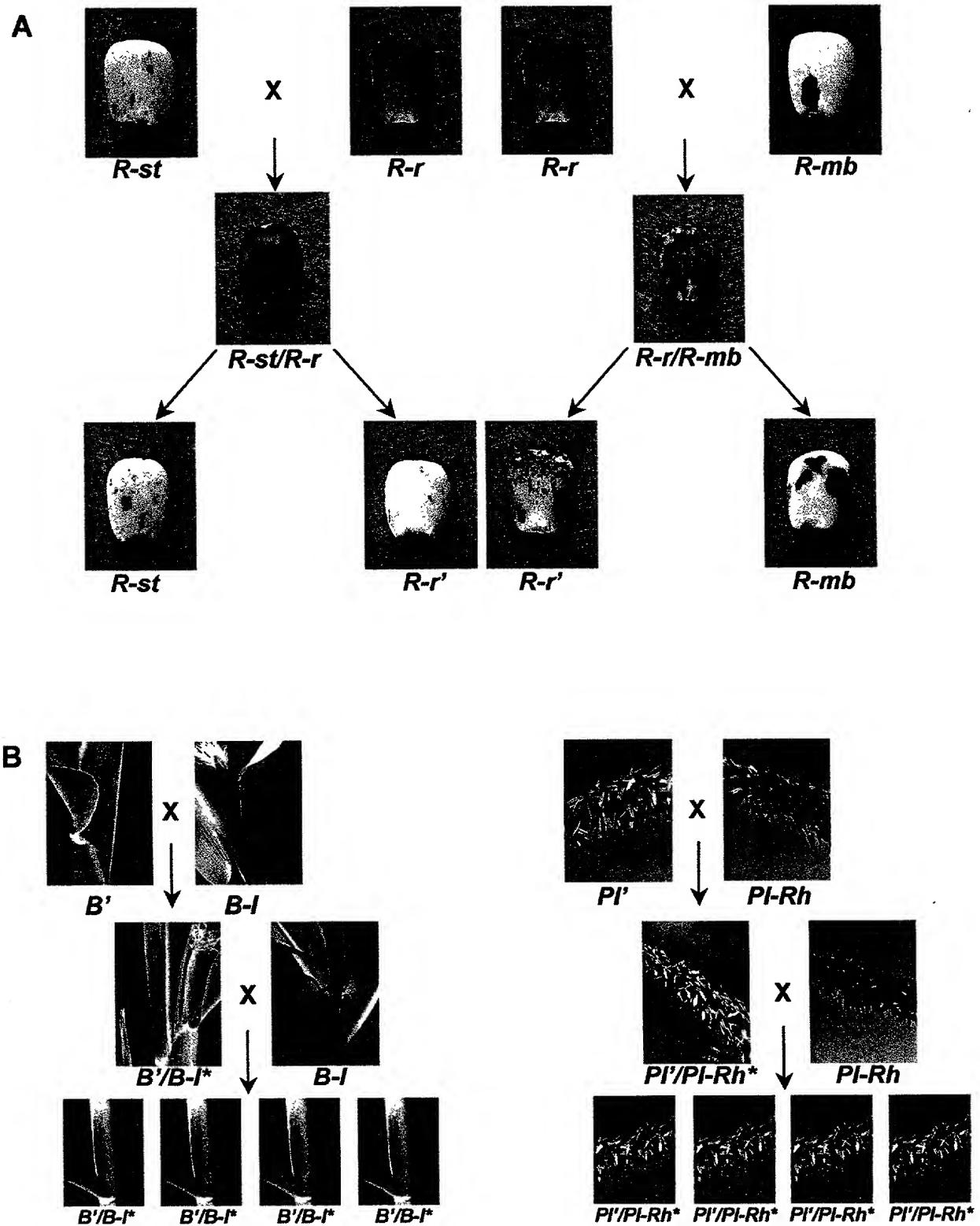
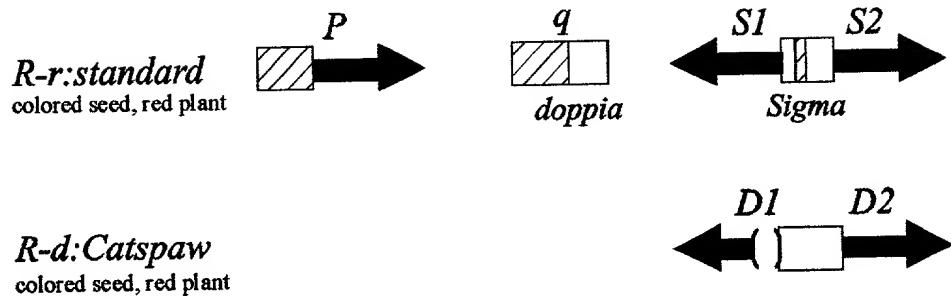
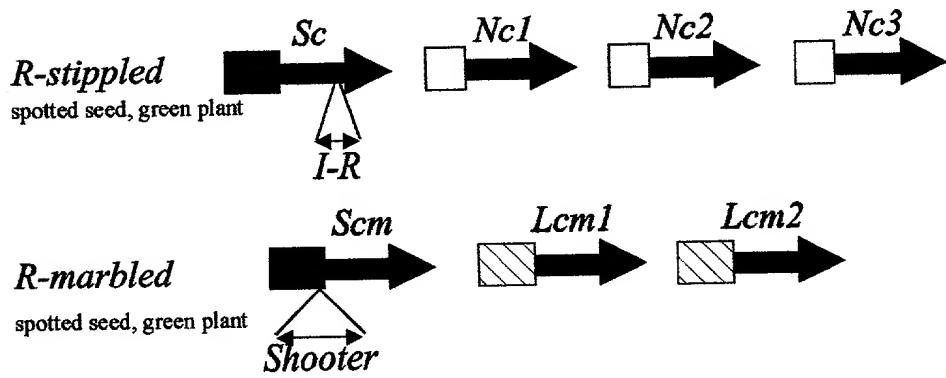


Figure 1

A Paramutable



Paramutagenic



B

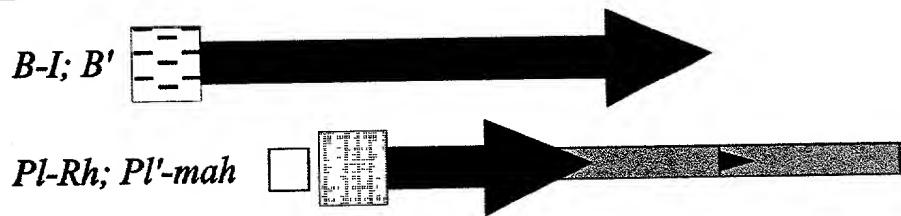


Figure 2

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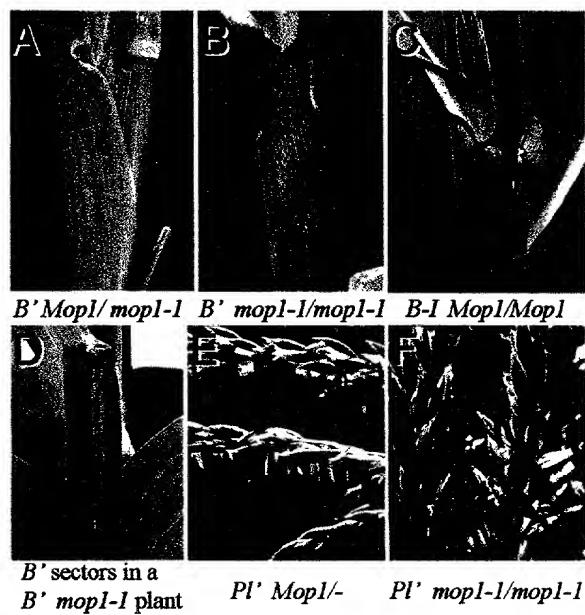


Figure 3

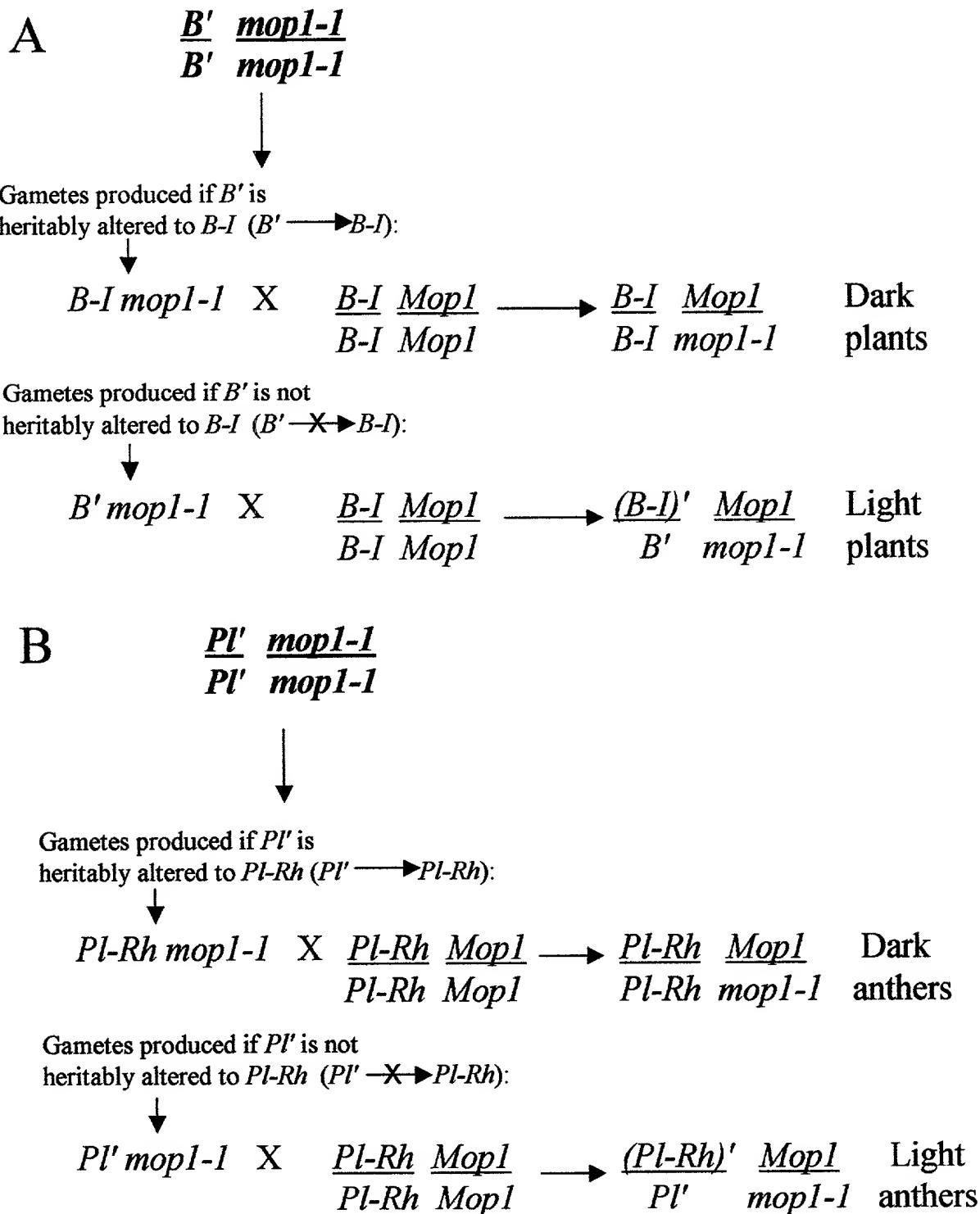


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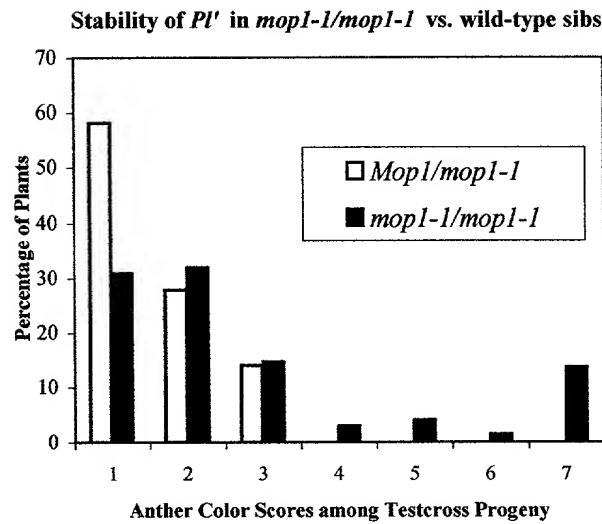


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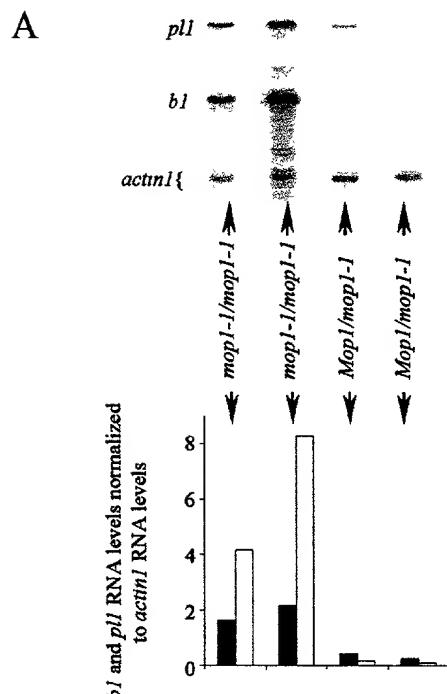


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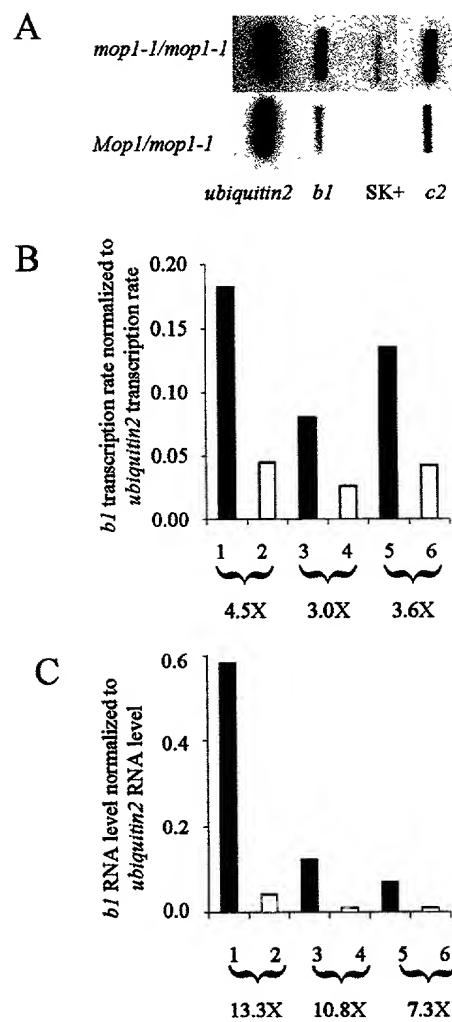


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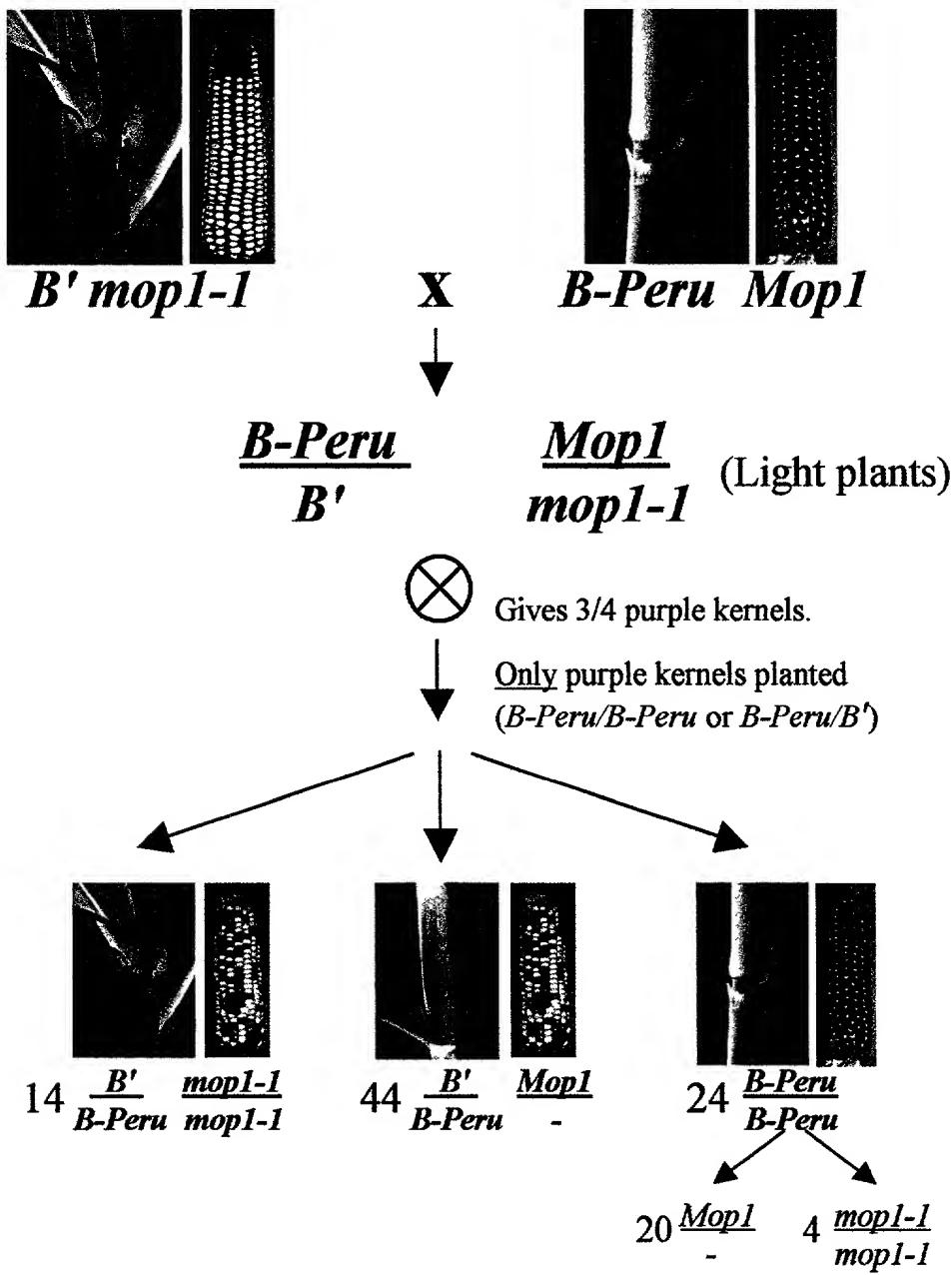
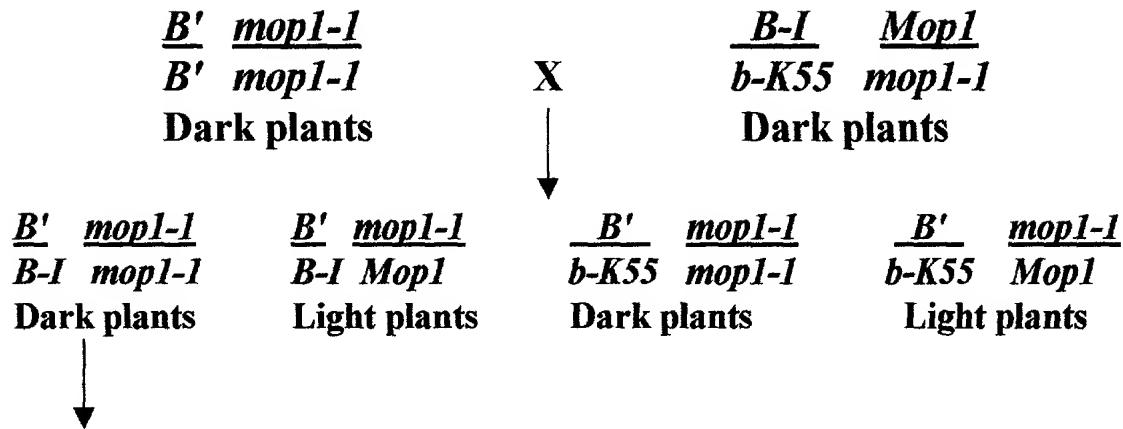


Figure 8



Testcross (by *B-Peru/B-I Mopl/Mopl* tester--diagram shows only *B-Peru* gametes of tester)

Gametes produced if paramutation is prevented ($B-I \rightarrow B'$):

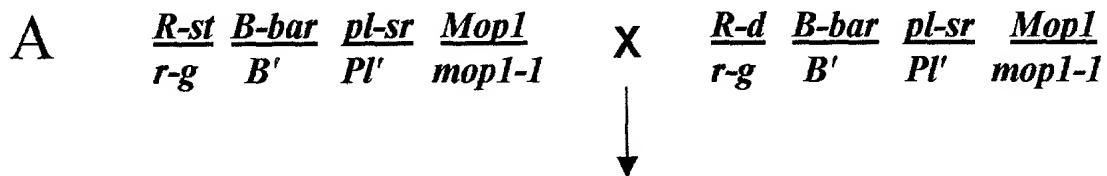
50% $B' \text{ } mopl-1 \times B\text{-Peru} \text{ } Mopl \rightarrow \frac{B'}{B\text{-Peru}} \frac{mopl-1}{Mopl}$ Light plants

50% $B-I \text{ } mopl-1 \times B\text{-Peru} \text{ } Mopl \rightarrow \frac{B-I}{B\text{-Peru}} \frac{mopl-1}{Mopl}$ Dark plants

Gametes produced if paramutation occurred ($B-I \rightarrow B'$):

100% $B' \text{ } mopl-1 \times B\text{-Peru} \text{ } Mopl \rightarrow \frac{B'}{B\text{-Peru}} \frac{mopl-1}{Mopl}$ Light plants

Figure 9



Four genotypes of interest among *R-d*-/ *Pl'*- progeny:

$\frac{3}{16}$ *R-d* *Mop1* Light plant
r-g -

$\frac{3}{16}$ *R-d* *Mop1* Light plant
R-st -

$\frac{1}{16}$ *R-d* *mop1-1* Dark plant
r-g *mop1-1*

$\frac{1}{16}$ *R-d* *mop1-1* Dark plant
R-st *mop1-1*

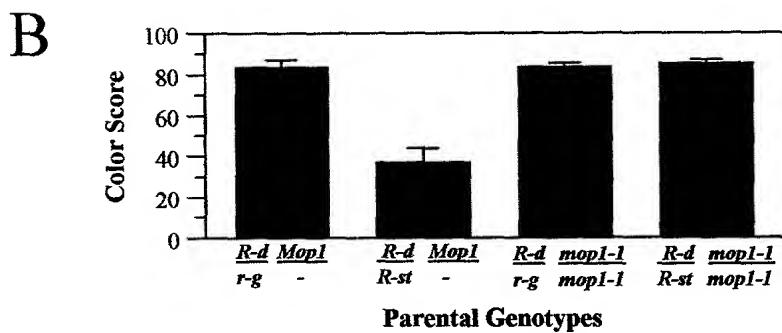


Figure 10

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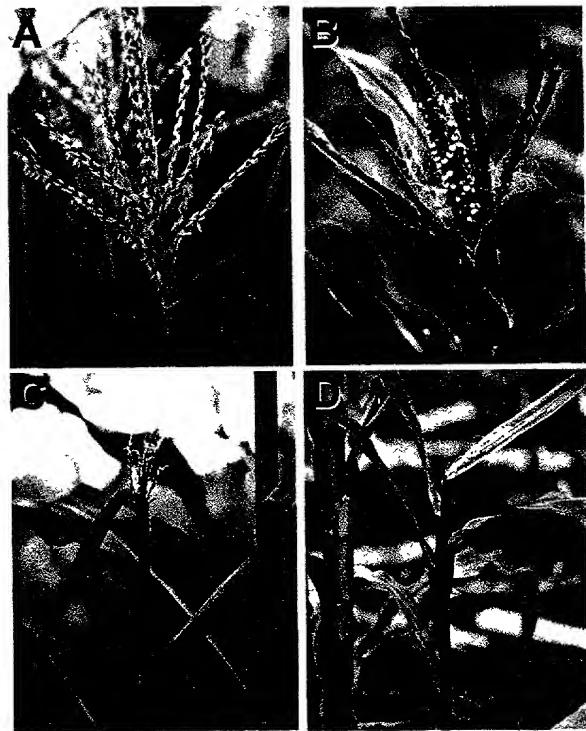


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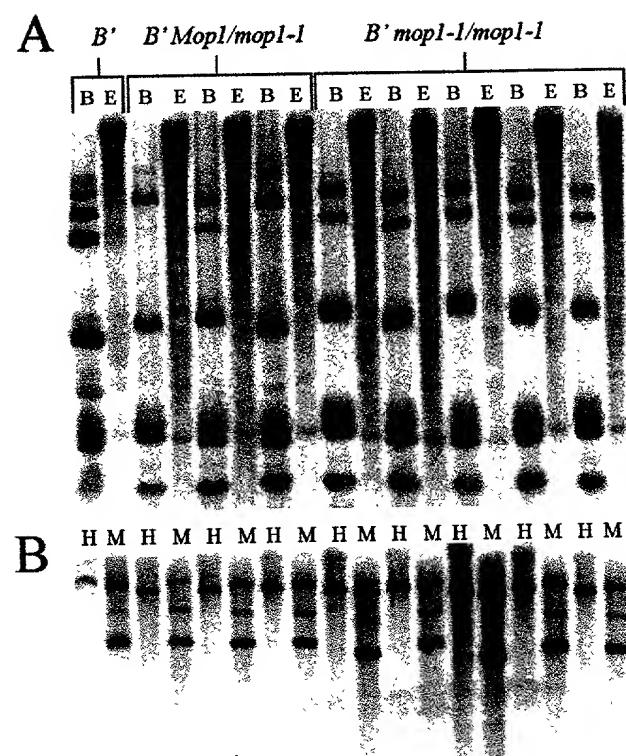


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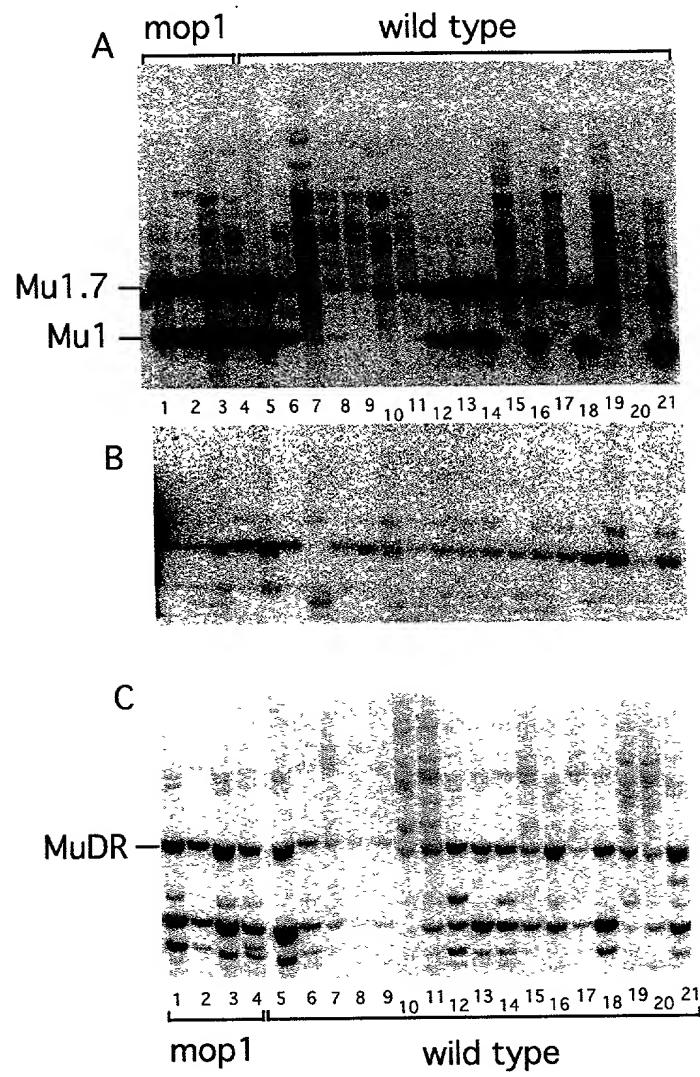
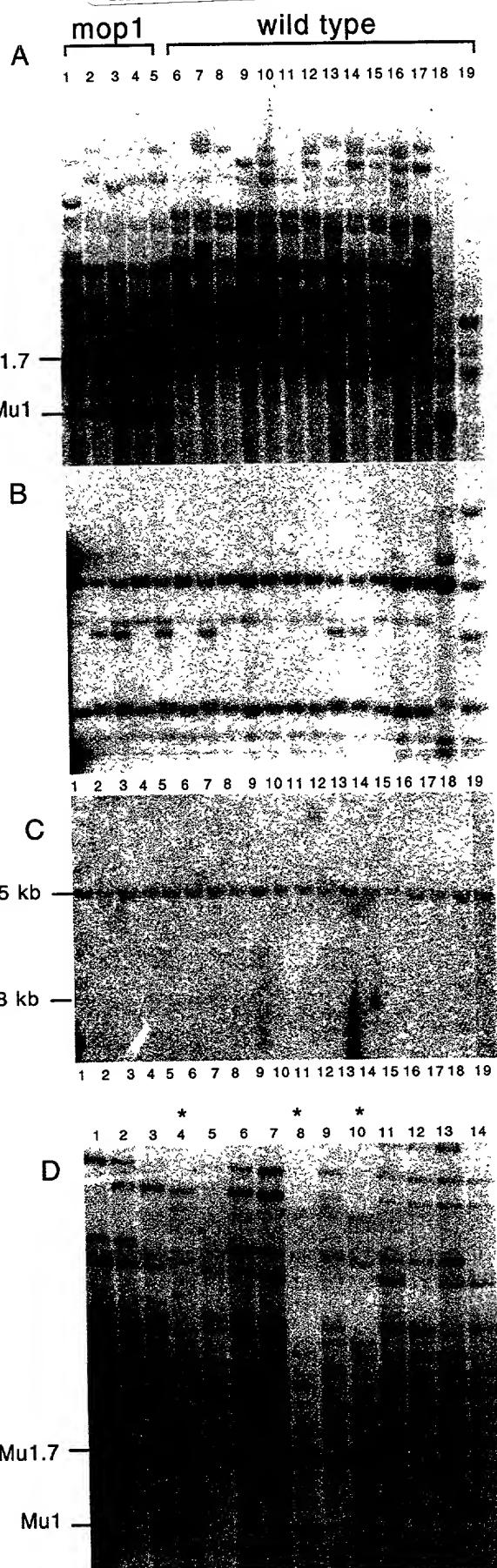


Figure 13

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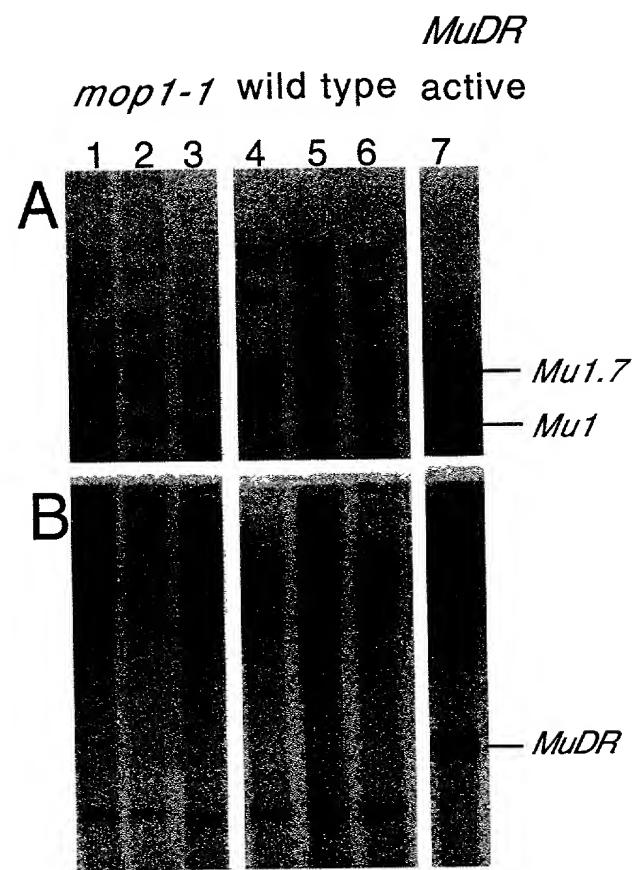


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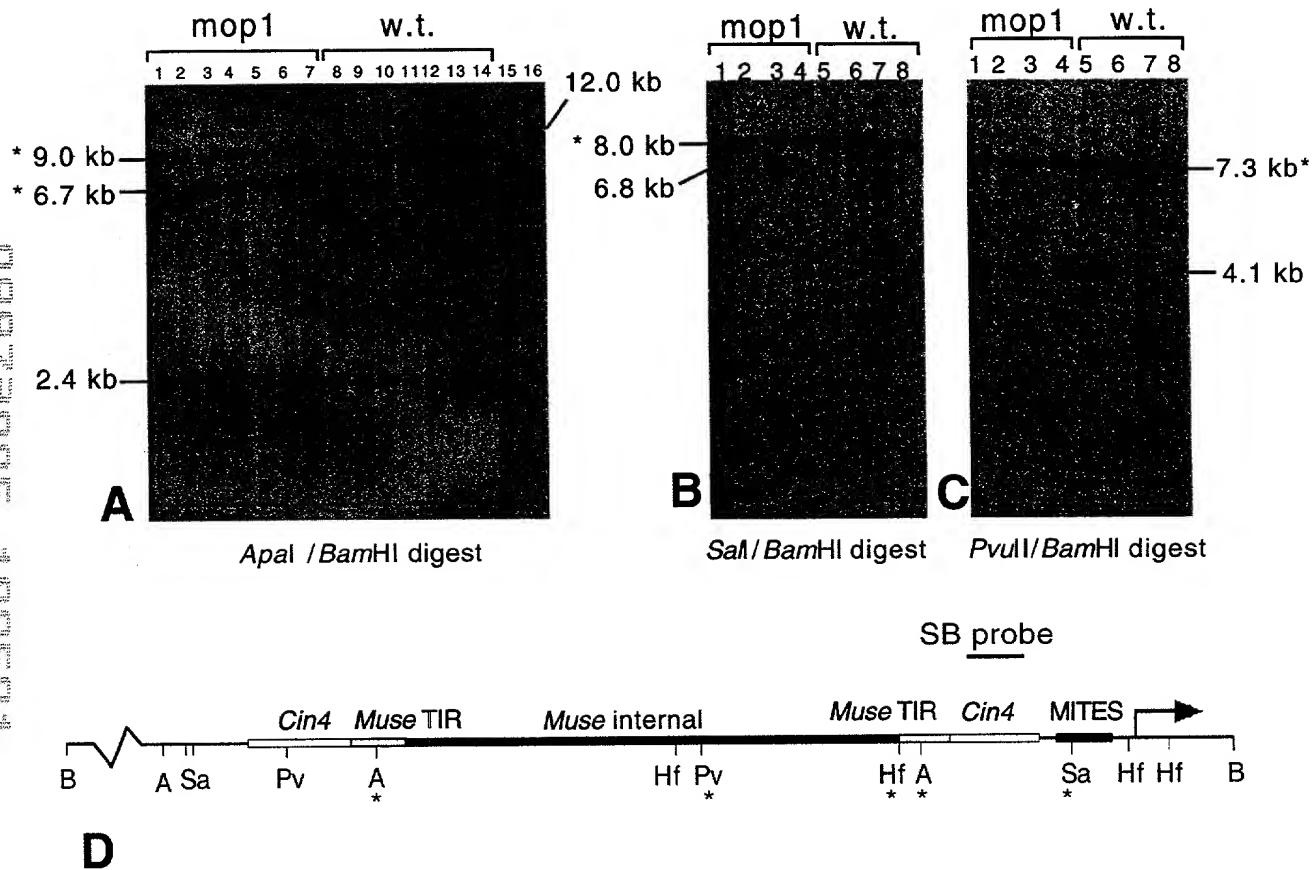


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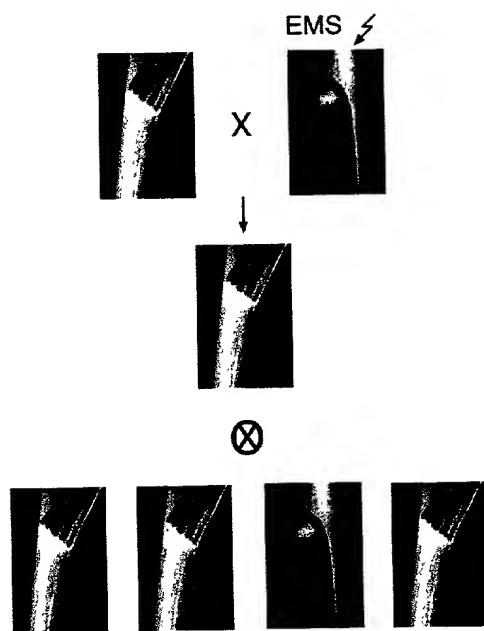


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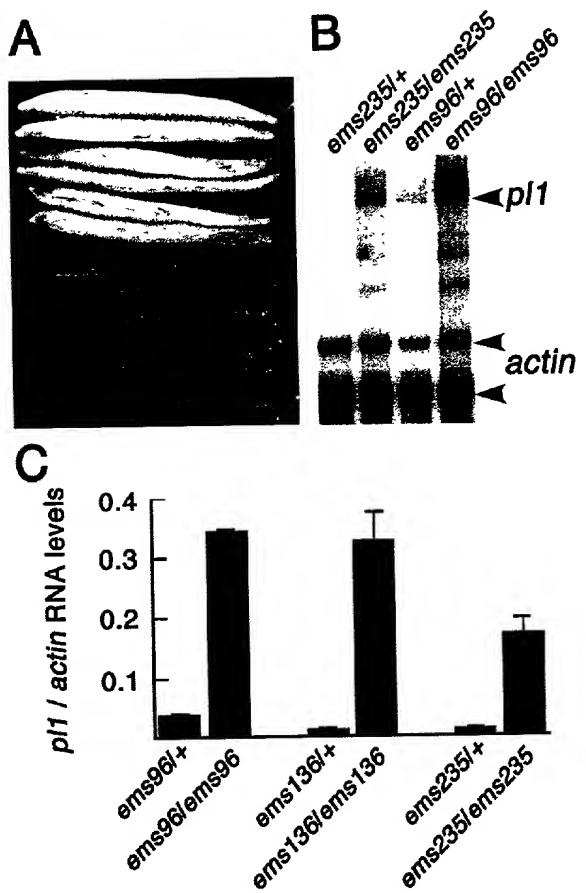


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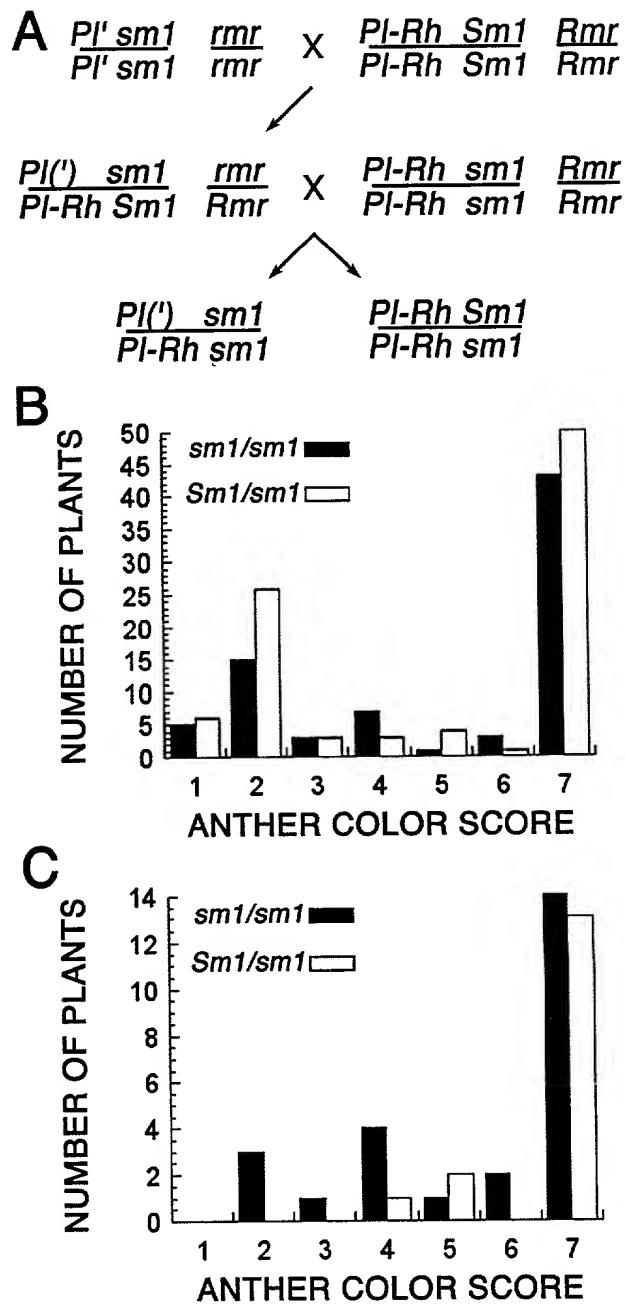


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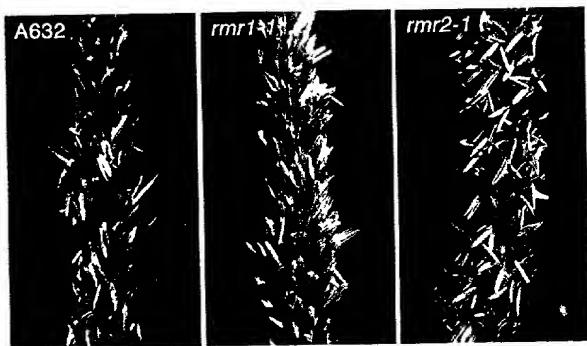


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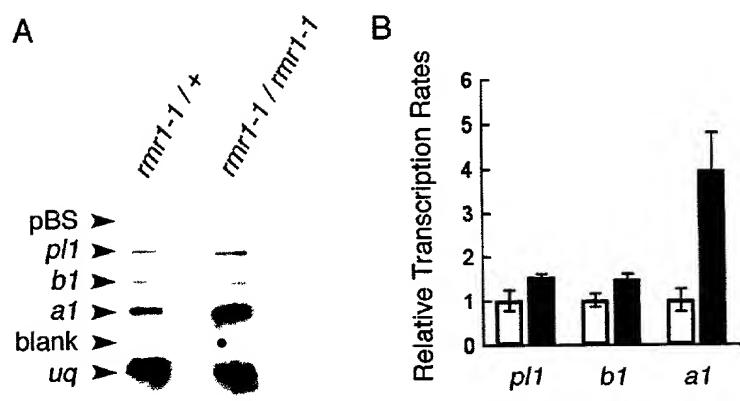


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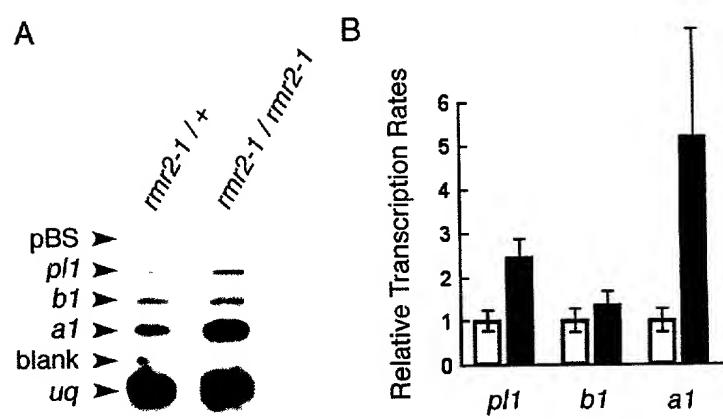


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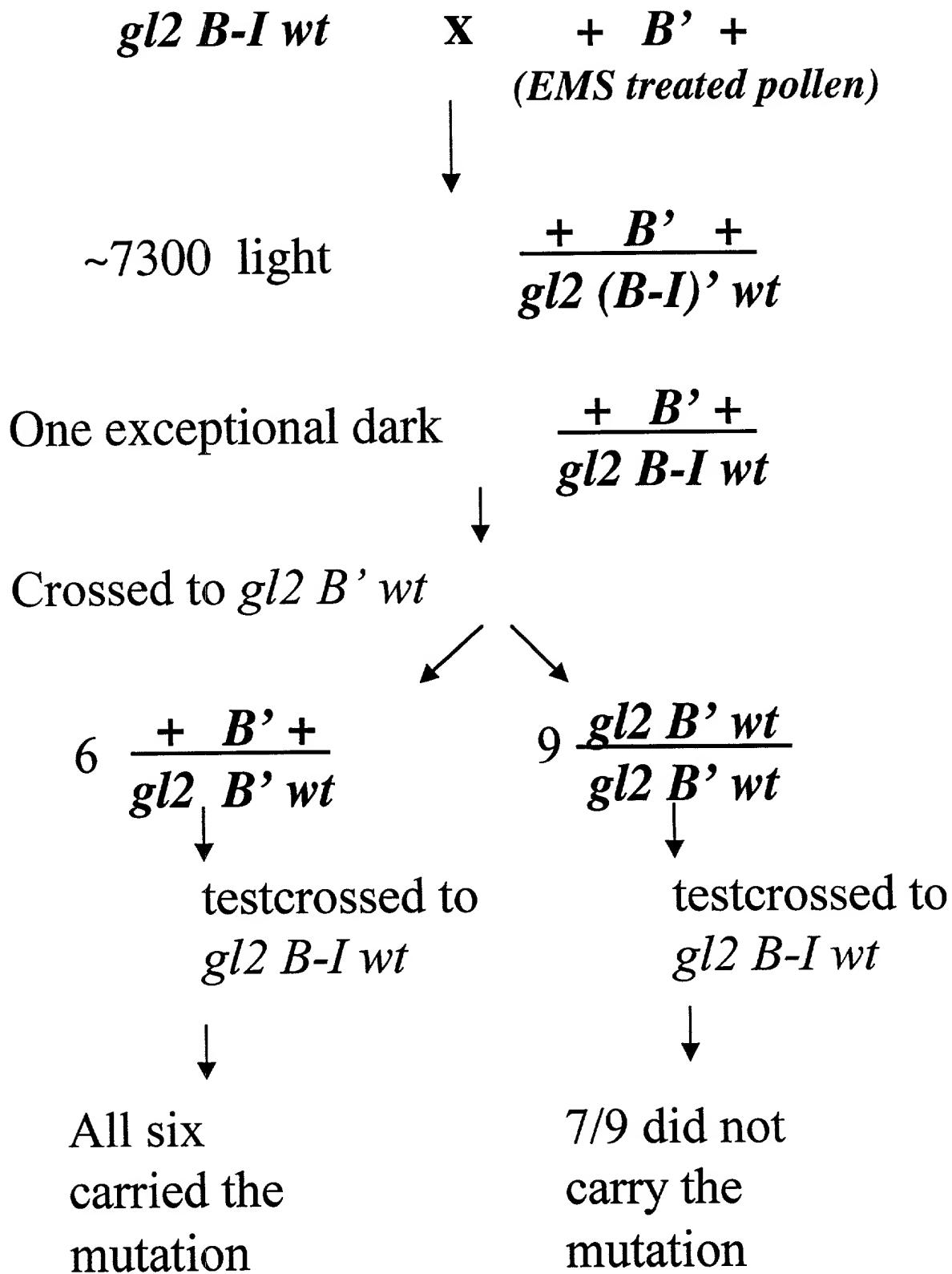


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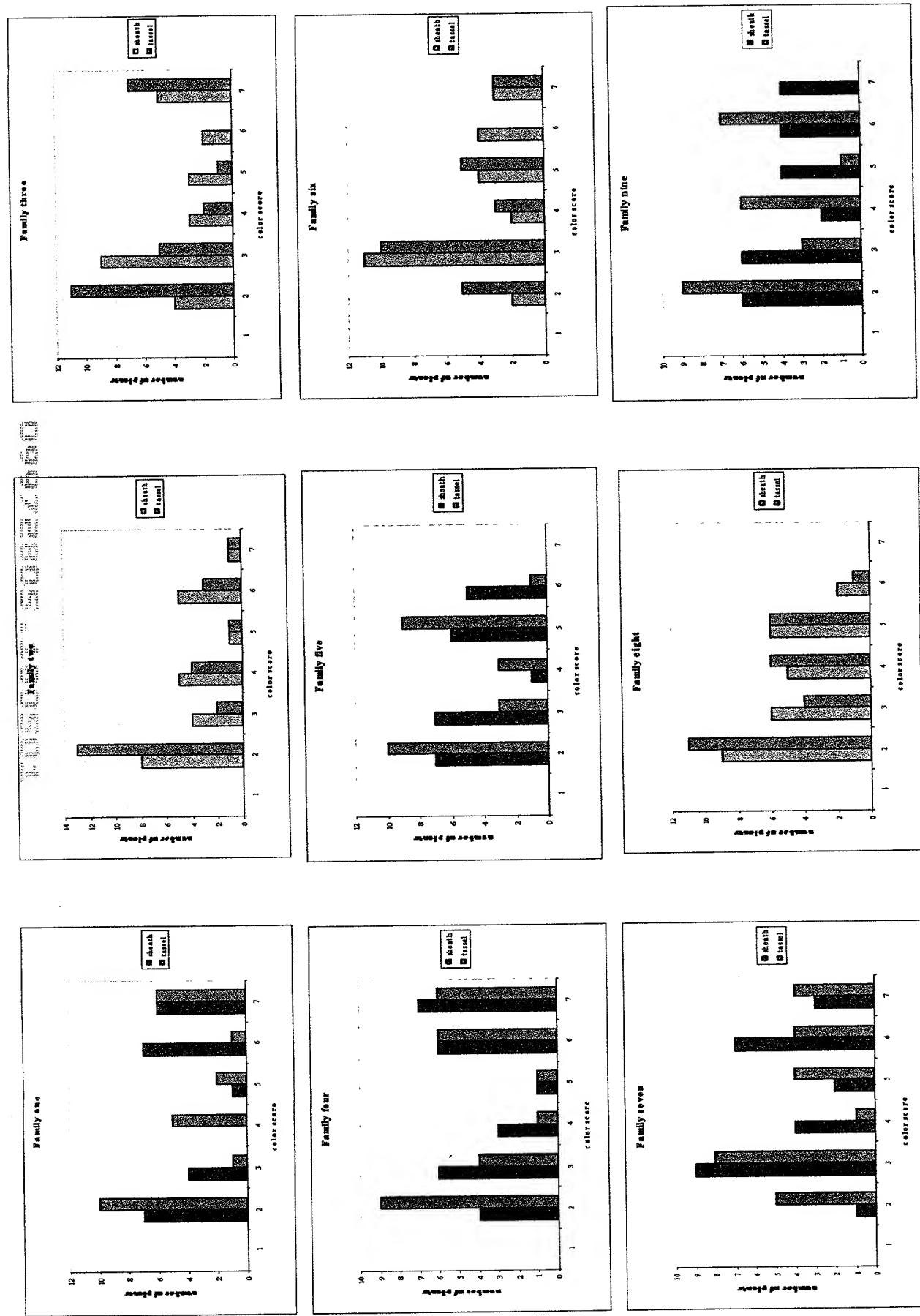


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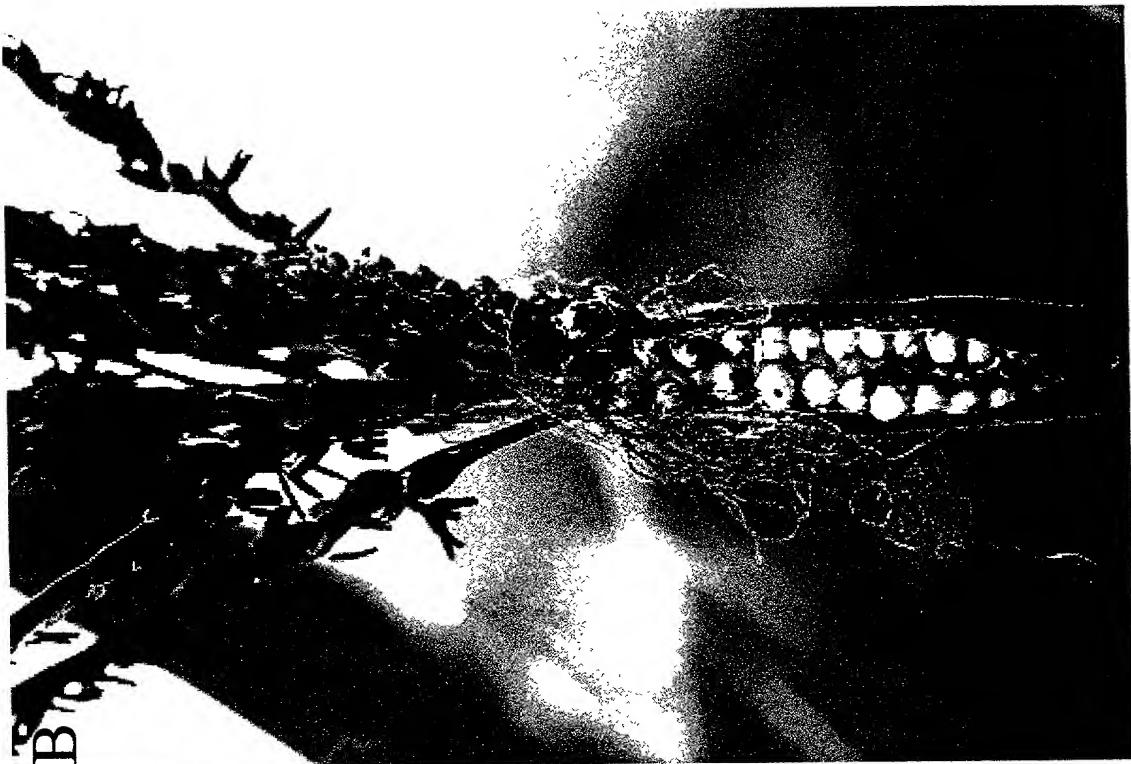
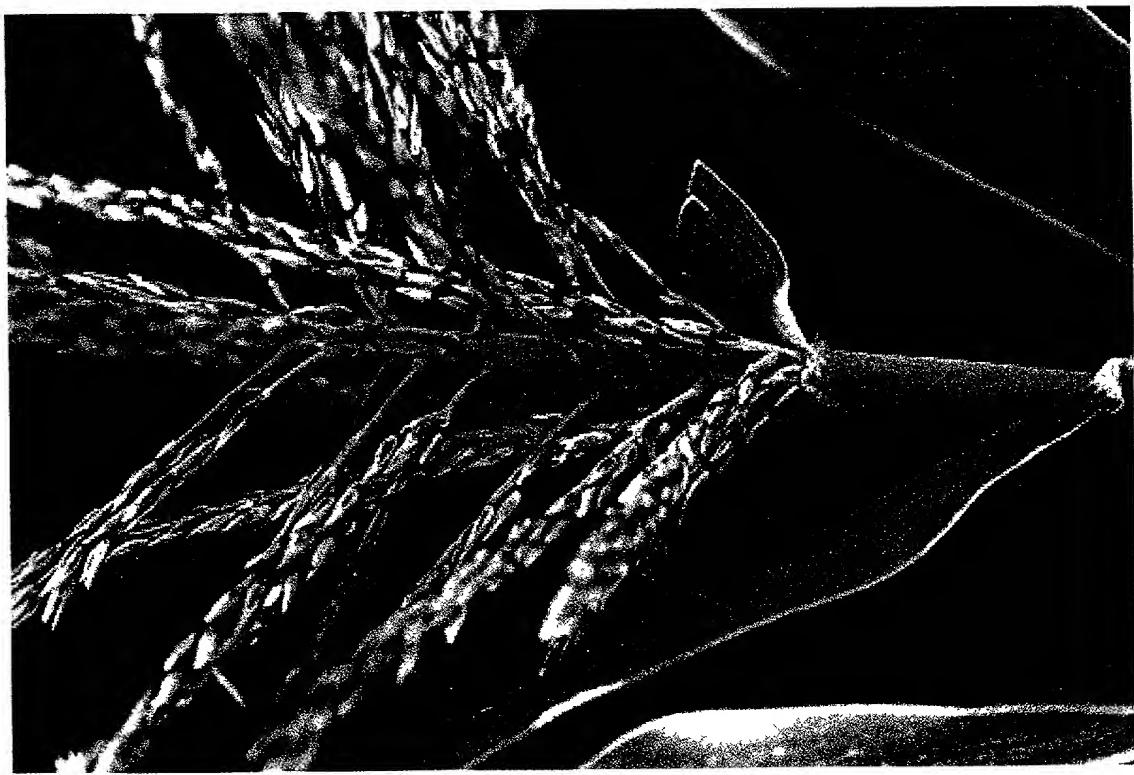


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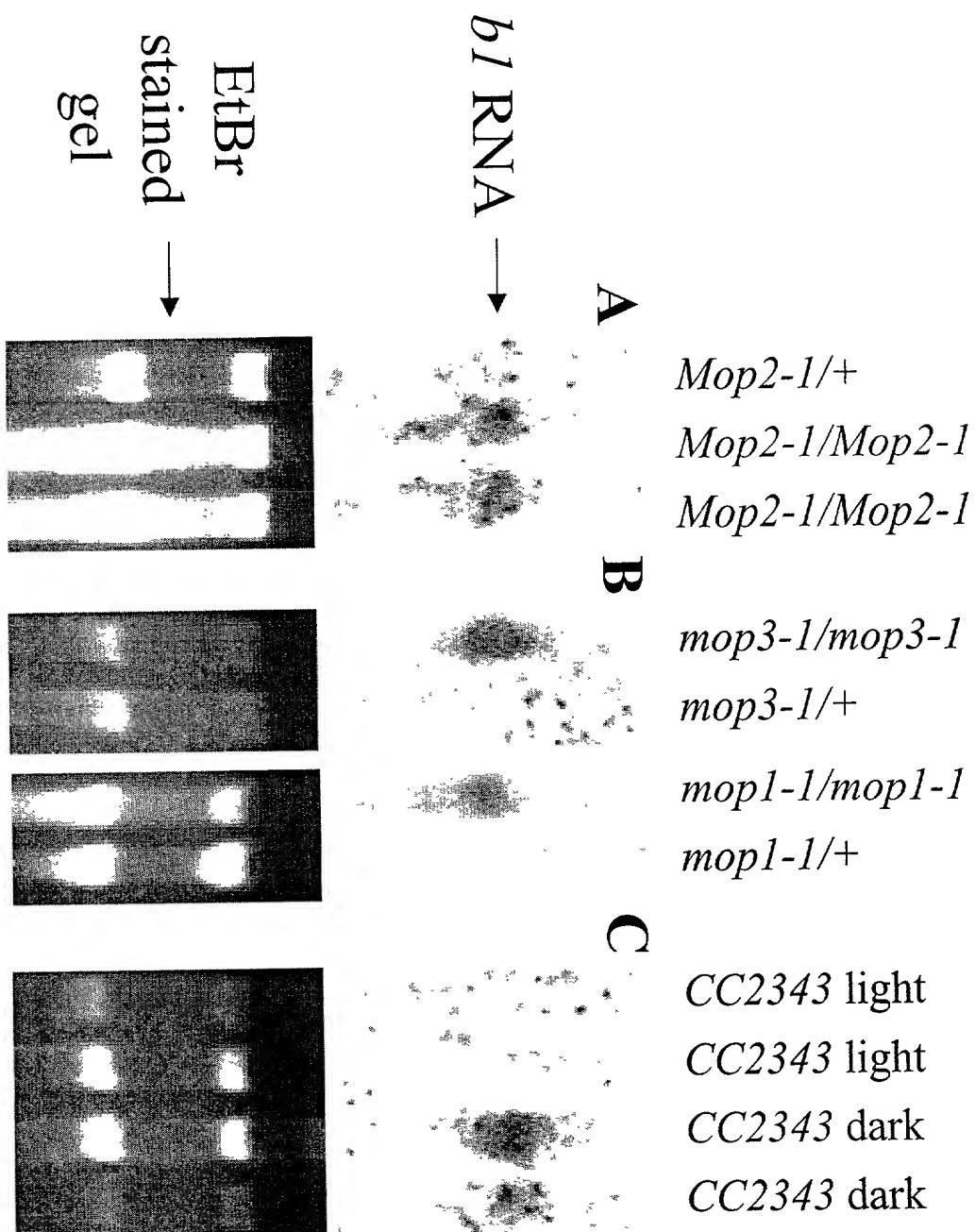


Figure 26



D



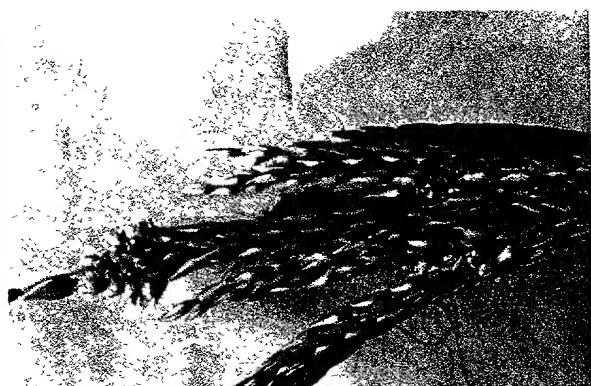
C



B



A



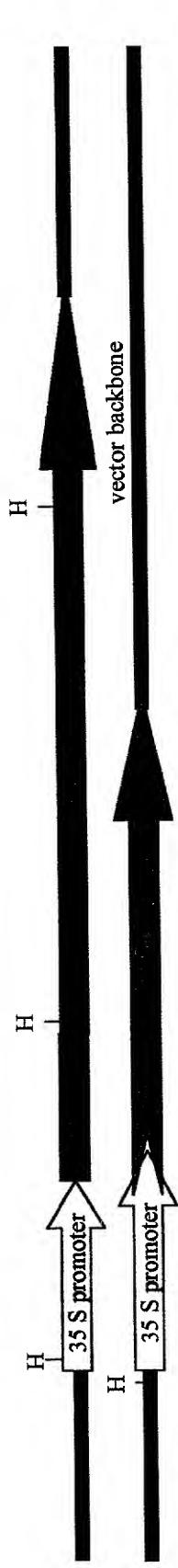
F



E

Figure 27

35SB-*Igen*



BBBS

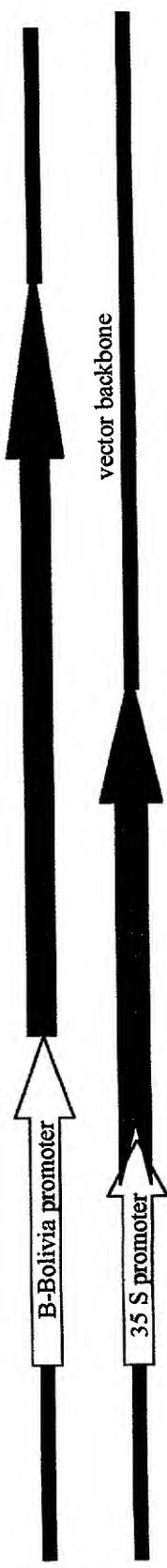
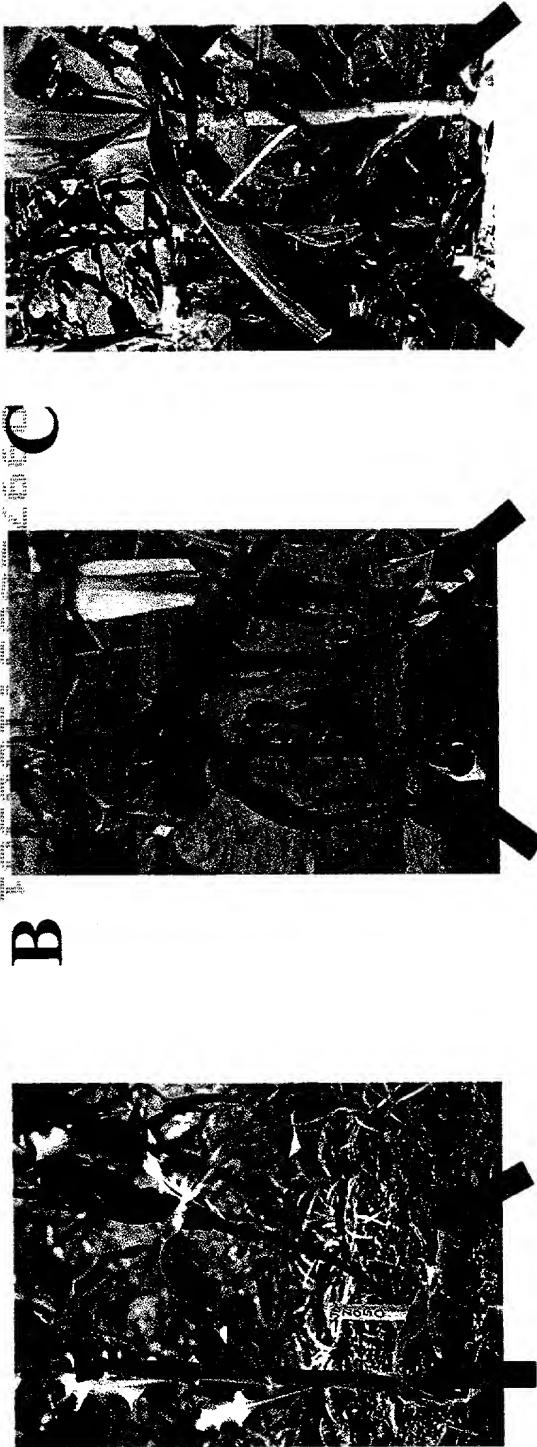


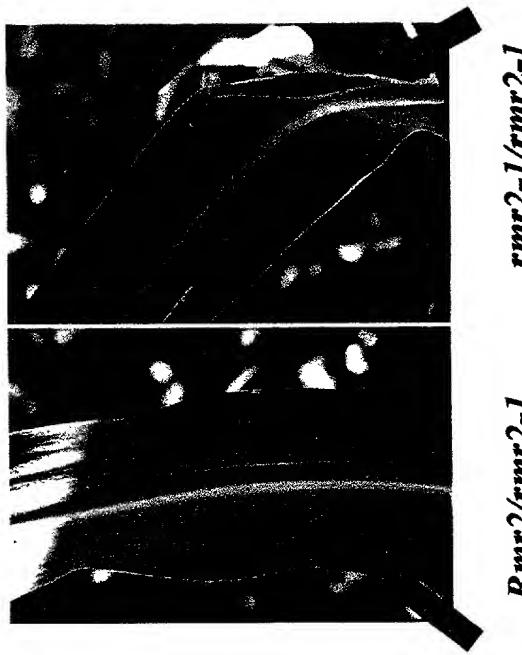
Figure 28



*B' Mop2-1/mop2 B' Mop2-1/Mop2-1
35SB-1*

*B' rmr2-1/rmr2-1 Rmr2/rmr2-1
35SB-1*

*B' mop1-1/mop1-1 B' Mop1/mop1-1
35SB-1*

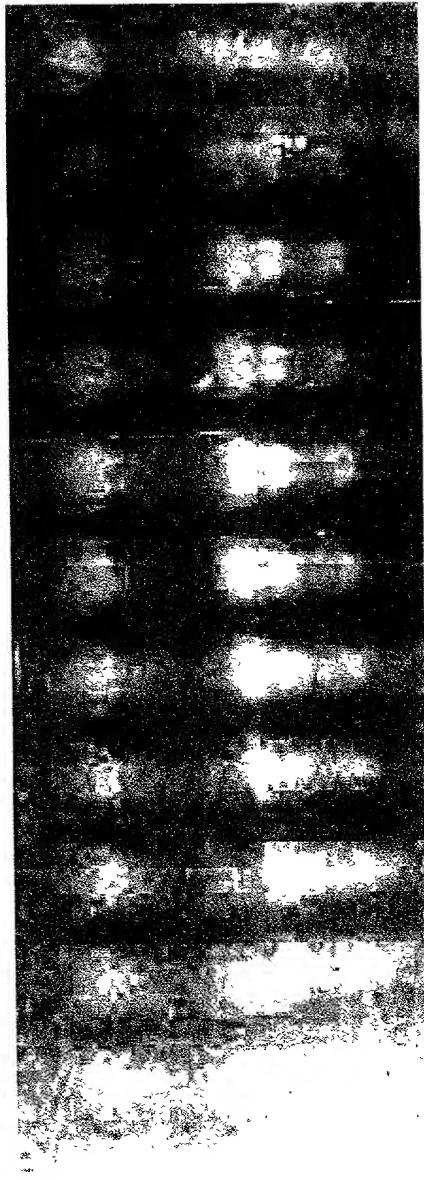
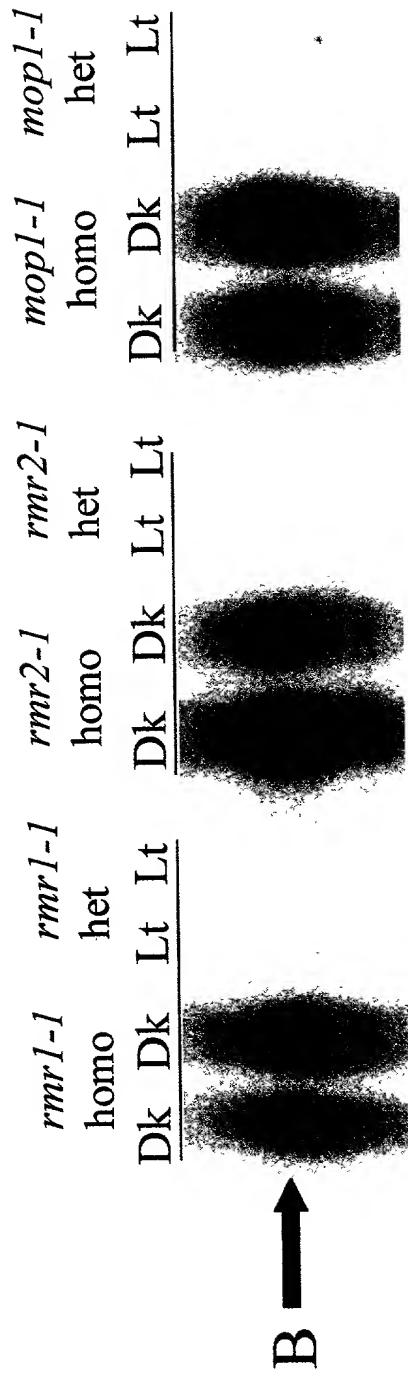


*rmr1-1/rmr1-1 Rmr1/rmr1-1
35SB-1*

*rmr2-1/rmr2-1 Rmr2/rmr2-1
35SB-1*

BBBS

Figure 29



Stained
Gel

Figure 30

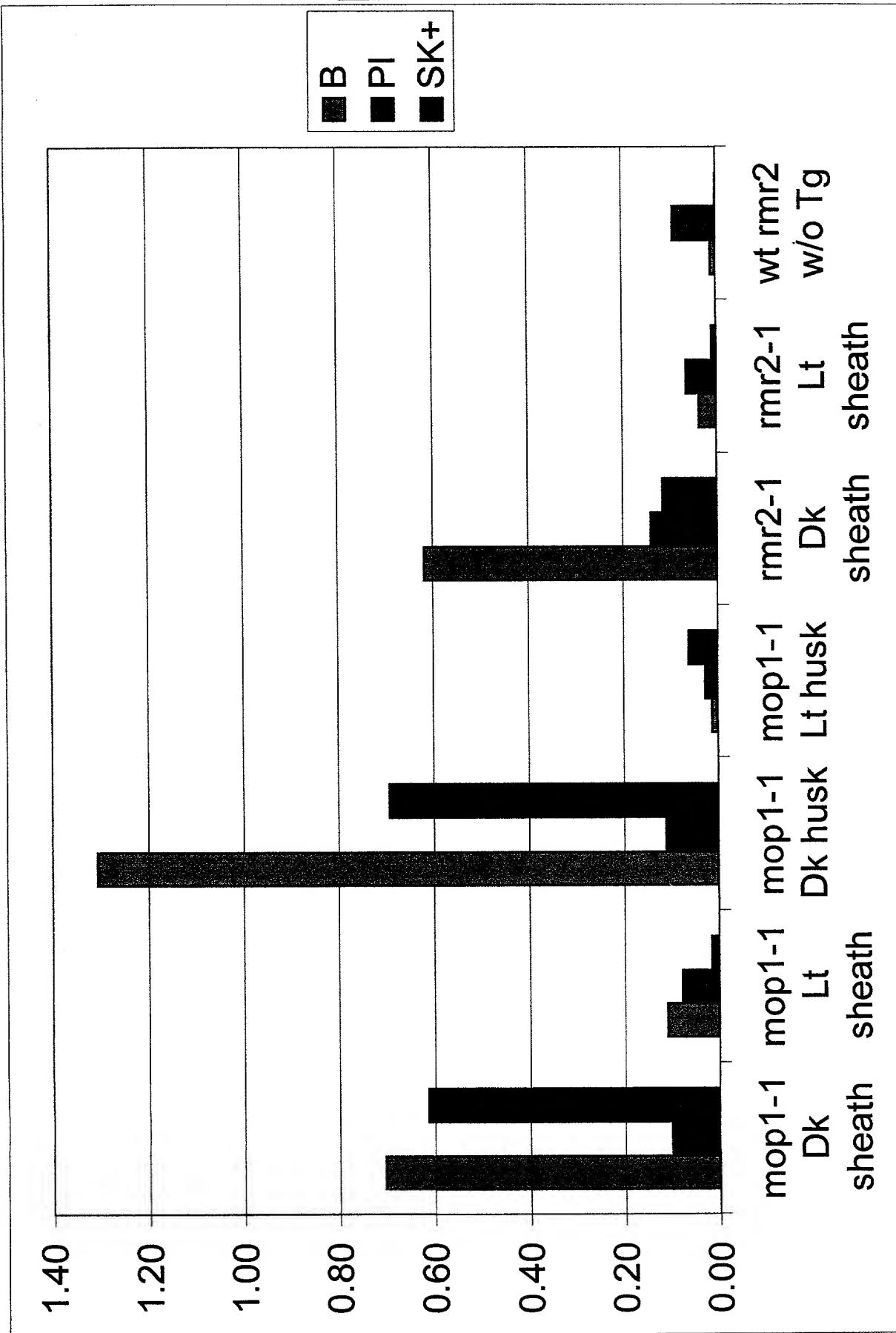


Figure 31

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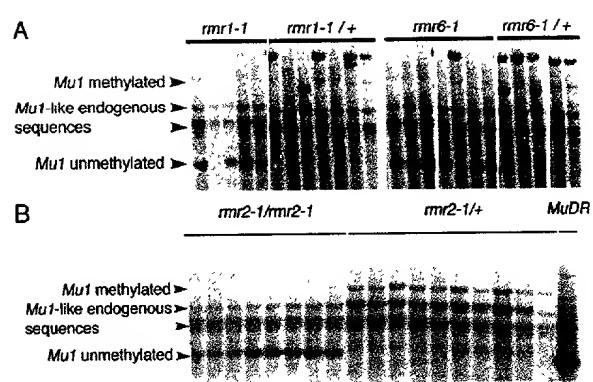


Figure 32

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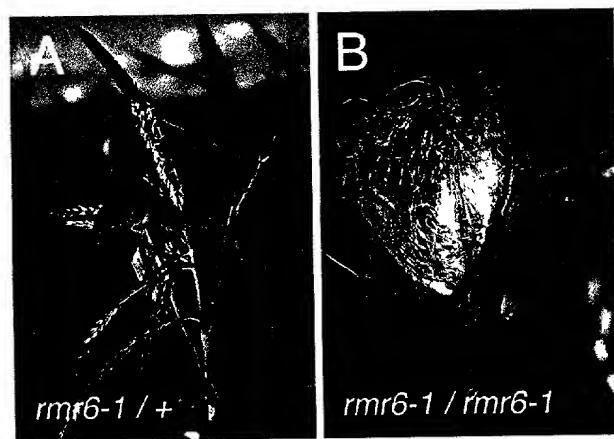


Figure 33

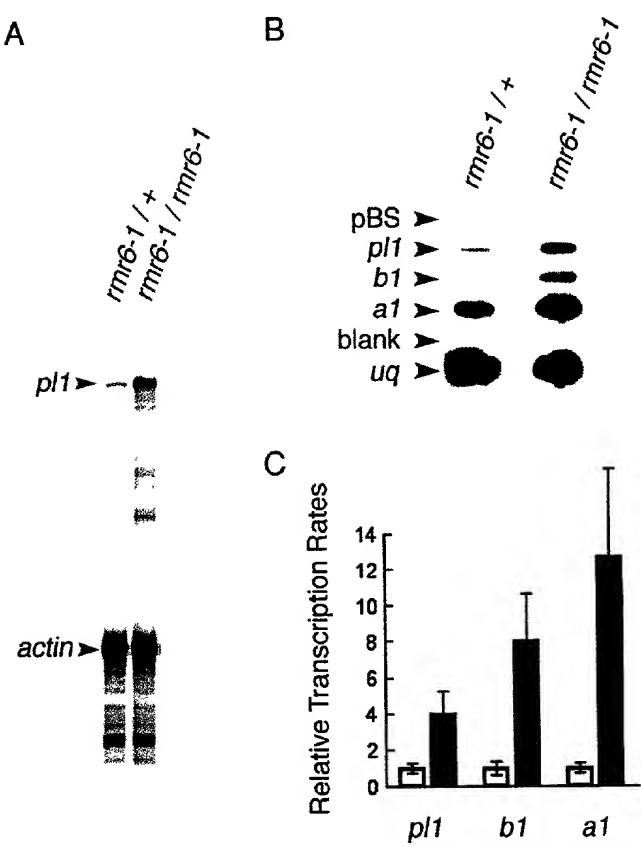


Figure 34